

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A method of measuring blocking artefacts on the basis of video data encoded in accordance with a block-based encoding technique, the method comprising the steps of:

 computing a monodimensional inverse discrete transform ~~(31)~~ of a first row of a first block of encoded video data, suitable for supplying a value of a first virtual border pixel ~~(vep1)~~; ;

 computing a monodimensional inverse discrete transform ~~(32)~~ of a first row of a second block of encoded video data, the second block being adjacent to the first block, suitable for supplying a value of a second virtual border pixel ~~(vep2)~~; ; and

 computing ~~(33)~~ a blocking artefact level ~~(VEP_L)~~ on the basis of an absolute value of a difference between the values of the first and second virtual pixels.

2. (Original) A method of measuring blocking artefacts as claimed in claim 1, wherein the virtual border pixels are determined at a point corresponding to a border between the first and second blocks.

3. (Original) A method of measuring blocking artefacts as claimed in claim 1, wherein the virtual border pixels are determined at points corresponding to the nearest pixel on both sides of a border between the first and second blocks.

4. (Original) A method of measuring blocking artefacts as claimed in claim 1, wherein the computation of a level of blocking artefacts is weighted by a weighting coefficient which is a function of the properties of the human visual system.

5. (Currently Amended) A method of encoding video data in the form of blocks, the method comprising the steps of:

 pre-encoding ~~(80)~~ a set of video data blocks ~~(IS)~~ suitable for supplying an assembly of pre-encoded data blocks ~~(PES)~~ and pre-encoding parameters ~~(p)~~; ;

partially decoding ~~(81, 82)~~ the set of pre-encoded data blocks, suitable for supplying transformed data blocks~~[[,]]~~;

measuring blocking artefacts ~~(30) as claimed in claim 1~~, suitable for supplying blocking artefact levels ~~(VEP_L)~~ based on transformed data blocks, the measuring comprising,

computing a monodimensional inverse discrete transform of a first row of a first block of encoded video data, suitable for supplying a value of a first virtual border pixel,

computing a monodimensional inverse discrete transform of a first row of a second block of encoded video data, the second block being adjacent to the first block, suitable for supplying a value of a second virtual border pixel, and

computing a blocking artefact level on the basis of an absolute value of a difference between the values of the first and second virtual pixels;

modifying ~~(83)~~ the pre-encoding parameter ~~(p)~~ of a block in accordance with a blocking artefact level associated with said block, suitable for supplying a modified pre-encoding parameter ~~(p')~~, ; and

encoding ~~(84)~~ the assembly of video data ~~(IS)~~ based on modified pre-encoding parameters ~~(p')~~.

6. (Currently Amended) A method of decoding encoded data blocks, the method comprising the steps of:

partially decoding ~~(21, 22)~~ the encoded data blocks ~~(1)~~, suitable for supplying transformed data blocks ~~(3)~~, ;

inverse discrete transform ~~(23)~~ suitable for converting transformed data blocks ~~(3)~~ into inversely transformed data blocks ~~(4)~~, ;

measuring blocking artefacts ~~(30) as claimed in claim 1~~, suitable for supplying blocking artefact levels ~~(VEP_L)~~ based on transformed data blocks ~~(3)~~, the measuring comprising,

computing a monodimensional inverse discrete transform of a first row of a first block of encoded video data, suitable for supplying a value of a first virtual border pixel,

computing a monodimensional inverse discrete transform of a first row of a second block of encoded video data, the second block being adjacent to the first block, suitable for supplying a value of a second virtual border pixel, and
computing a blocking artefact level on the basis of an absolute value of a difference between the values of the first and second virtual pixels; and
 filtering (70) suitable for applying a filter among a set of filters (71, 72, 73) for an assembly of inversely transformed data on both sides of a border between two blocks in accordance with the blocking artefact level (VEP_L) associated with said border.

7. (Currently Amended) A method of transcoding encoded data blocks, the method comprising the steps of:

partially decoding (401, 402) encoded data blocks, suitable for supplying transformed data blocks with which a first quantization step is associated[[,]]; measuring blocking artefacts (30) ~~as claimed in claim 1~~, suitable for supplying blocking artefact levels (VEP_L) based on transformed data blocks, the measuring comprising,

computing a monodimensional inverse discrete transform of a first row of a first block of encoded video data, suitable for supplying a value of a first virtual border pixel,
computing a monodimensional inverse discrete transform of a first row of a second block of encoded video data, the second block being adjacent to the first block, suitable for supplying a value of a second virtual border pixel, and
computing a blocking artefact level on the basis of an absolute value of a difference between the values of the first and second virtual pixels;
 partially encoding (403, 404) transformed data blocks, suitable for supplying encoded data blocks, with which a second quantization step is associated[[,]] ; and storing (405) encoded data blocks in a storage unit, the value of the second quantization step of a block being a function of a space available in the storage unit as well as of a value of an artefact level of said block.

8. (Original) A device for measuring blocking artefacts based on encoded video data in accordance with a block encoding technique, the device comprising:

means for computing a monodimensional inverse discrete transform of a first row of a first block of encoded video data, suitable for supplying a value of a first virtual border pixel,

means for computing a monodimensional inverse discrete transform of a first row of a second block of encoded video data, the second block being adjacent to the first block, suitable for supplying a value of a second virtual border pixel,

a computing unit suitable for computing a blocking artefact level on the basis of an absolute value of a difference between the values of the first and second virtual pixels.

9. (Currently Amended) A video encoder of data in the form of blocks, the video encoder comprising:

means for pre-encoding a set of video data blocks ~~(IS)~~ suitable for supplying an assembly of pre-encoded data blocks ~~(PES)~~ and pre-encoding parameters ~~(p)~~ ;

means for partially decoding the set of pre-encoded data blocks, suitable for supplying transformed data blocks[[,]] ;

a device for measuring blocking artefacts ~~as claimed in claim 8~~, suitable for supplying blocking artefact levels ~~(VEP_L)~~ based on transformed data blocks, the device comprising,

means for computing a monodimensional inverse discrete transform of a first row of a first block of encoded video data, suitable for supplying a value of a first virtual border pixel,

means for computing a monodimensional inverse discrete transform of a first row of a second block of encoded video data, the second block being adjacent to the first block, suitable for supplying a value of a second virtual border pixel, and

a computing unit suitable for computing a blocking artefact level on the basis of an absolute value of a difference between the values of the first and second virtual pixels;

a unit for computing a modified pre-encoding parameter (\hat{p}) based on the pre-encoding parameter (\hat{p}) of a block and a blocking artefact level associated with said block[[,]] ; and

means for encoding the assembly of video data (\hat{S}) on the basis of modified pre-encoding parameters (\hat{p}).

10. (Currently Amended) A video decoder of encoded data blocks, comprising:

means for partially decoding encoded data blocks ($\hat{1}$), suitable for supplying transformed data blocks ($\hat{3}$); ;

means for inverse discrete transform ($\hat{23}$), suitable for converting transformed data blocks ($\hat{3}$) into inversely transformed data blocks ($\hat{4}$); ;

a device for measuring blocking artefacts ~~as claimed in claim 8~~, suitable for supplying blocking artefact levels ($\hat{VEP_L}$) based on transformed data blocks ($\hat{3}$), the device comprising,

means for computing a monodimensional inverse discrete transform of a first row of a first block of encoded video data, suitable for supplying a value of a first virtual border pixel,

means for computing a monodimensional inverse discrete transform of a first row of a second block of encoded video data, the second block being adjacent to the first block, suitable for supplying a value of a second virtual border pixel, and

a computing unit suitable for computing a blocking artefact level on the basis of an absolute value of a difference between the values of the first and second virtual pixels; and

a filtering unit, suitable for applying a filter among a set of filters ($\hat{71}, \hat{72}, \hat{73}$) for an assembly of inversely transformed data on both sides of a border between two blocks in accordance with the blocking artefact level ($\hat{VEP_L}$) associated with said border.

11. (Currently Amended) A video transcoder of encoded data blocks, comprising:

means for partially decoding encoded data blocks, suitable for supplying transformed data blocks with which a first quantization step is associated[[,]]; ;

a device for measuring blocking artefacts ~~as claimed in claim 8~~, suitable for supplying blocking artefact levels (~~VEP_L~~) based on transformed data blocks, the device comprising,

means for computing a monodimensional inverse discrete transform of a first row of a first block of encoded video data, suitable for supplying a value of a first virtual border pixel,

means for computing a monodimensional inverse discrete transform of a first row of a second block of encoded video data, the second block being adjacent to the first block, suitable for supplying a value of a second virtual border pixel, and

a computing unit suitable for computing a blocking artefact level on the basis of an absolute value of a difference between the values of the first and second virtual pixels;

means for partially decoding transformed data blocks, suitable for supplying encoded data blocks, with which a second quantization step is associated[[,]];

a unit for storing encoded data blocks[[,]]; and

a computing unit suitable for computing the value of the second quantization step of a block on the basis of a space available in the storage unit and of a value of a blocking artefact level associated with said block.

12. (Currently Amended) A computer program stored on a computer-readable medium suitable for performing the method of measuring blocking artefacts as claimed in claim 1, when said program is executed by a processor.